

REMARKS

Claims 1-11 and 14-23 are pending for further examination. Claims 1, 2-5, 8, 14 and 18 are currently amended. Claims 21-23 are new. Claims 12-13 are withdrawn as a result of a previous restriction requirement.

Claim Objections

Claim 1 was objected to because of ambiguous language. Applicant has amended claim 1 to address those ambiguities and respectfully requests withdrawal of the objection.

Claim Rejections

35 U.S.C. §112

Claims 14 and 18 were rejected for insufficient antecedent basis. Applicant has amended those claims to correct the informality and respectfully requests withdrawal of the claim rejections.

35 U.S.C. §102(b) and §103(a)

Claims 1-3 and 6 were rejected as anticipated by Eichenbaum (U.S. Patent No. 6,252,719).

Claims 4-5, 7, 15-17 and 19 were rejected as unpatentable over the Eichenbaum patent. Claims 8-11 were rejected as unpatentable over the Eichenbaum patent in view of Rangwala et al. (U.S. Patent No. 5,841,562) and further in view of Takahashi (U.S. Patent No. 5,408,559). Claims 14 and 18 were rejected as unpatentable over the Eichenbaum patent in view of Gallup et al. (U.S. Patent No. 6,900,509). Claim 20 was rejected over the Eichenbaum patent in view of Ouchi (U.S. Patent No. 6,597,713).

In view of the foregoing amendments and the following remarks, Applicant respectfully requests reconsideration and withdrawal of the claim rejections.

Independent claim 1 is currently amended to recite an optical module that includes an optical joint sleeve having a first mount surface to mount a first optical element and a second mount surface to mount a second optical element, in which the first mount surface is a “bottom surface of a first groove” and the second mount surface is a “bottom surface of a second groove that intersects the first groove.”

An example of these features is illustrated in FIGS. 1, 4 and 6 of the present application. As shown in FIG. 1, an optical joint sleeve 5 joins together a light emitting subassembly LD3, a light transmitting part 3, and first and second light receiving subassemblies PD1, PD2 in a single optical module 1. The joint sleeve 5 includes several optical components that allows the reception of multiple optical signals as well as transmission of an optical signal. In particular, the optical joint sleeve 5 includes a first mount surface 5s for mounting a first optical element F1 and a second mount surface 5t for mounting a second optical element F2 (*see* FIGS. 4, 6; pg. 16, lines 16-19). The first mount surface 5s corresponds to a bottom surface of groove C1 whereas the second mount surface 5t corresponds to a bottom surface of groove C2. Grooves C1 and C2 intersect so that, in some implementations, the assembly of first and second optical elements F1, F2 inside of the joint sleeve 5 is simplified and a compact joint sleeve can be formed.

In contrast, none of the cited references discloses an optical joint sleeve that includes a “first mount surface to mount a first optical element” and “a second mount surface to mount a second optical element” in which the first and second mount surfaces respectively correspond to bottom surfaces of first and second intersecting grooves, as recited in pending claim 1.

Furthermore, the cited references do not render obvious the subject matter of claim 1.

The Eichenbaum patent discloses a beam splitter/combiner module for multiplexing or demultiplexing a plurality of optical signals (*see* Abstract, FIG. 1). However, as acknowledged by the Office action (*see* pg. 5), the Eichenbaum patent does not disclose the claimed “optical joint sleeve.” Furthermore, there is no disclosure in the Eichenbaum patent of a “first mount surface” that is the bottom surface of a first groove or a “second mount surface” that is a bottom surface of a second groove that “intersects the first groove.”

The Rangwala et al. patent discloses a bidirectional optoelectronic transceiver assembly 10 (*see Abstract; FIG. 1*). The transceiver assembly 10 includes a ferrule 32 in which one side of the ferrule 32 fits into a cylindrical bore of a socket 22 and the other side of the ferrule 32 fits into a housing of an RS-module 30. There is no disclosure, however, that the ferrule 32 of the Rangwala et al. patent includes a first mount surface and a second mount surface that respectively correspond to bottom surfaces of a “first groove” and “second groove that intersects the first groove” as recited in pending claim 1. Instead, the Rangwala et al. patent merely discloses that one end of the ferrule 32 has an oblique surface 50 on which a reflection/transmission coating is formed.

The Takahashi et al. patent discloses a transmitting and receiving optoelectronic device that includes a support 15 for supporting wave-separating filters 16, 22 (*see FIG. 3; col. 8, lines 25-33*). There is no disclosure in the Takahashi et al. patent, however, that the support includes a “first mount surface” that is the bottom surface of a first groove or a “second mount surface” that is a bottom surface of a second groove that “intersects the first groove.”

The Gallup et al. patent discloses a package 100 for a die in a receiving section of an optical transceiver (*see FIG. 1; col. 4, lines 52-54*). A cap 130 in the package 100 provides an optical path for an optical data signal. The optical data signal is converted into an electrical signal by a sensor 110 electrically connected to a sub-mount 120 beneath the cap 130. There is no disclosure, however, of the foregoing features missing from the Eichenbaum patent.

The Ouchi patent discloses a two dimensional VCSEL array in which each VCSEL includes a single-wavelength cavity 3 composed of a strained dual quantum well layer of InGaAs/GaAs and an AlGaAs spacer layer (*see FIG. 7; col. 9, lines 29-37*). However, the Ouchi patent does not disclose the features missing from the Eichenbaum patent.

At least for the foregoing reasons, independent claim 1 should be allowed.

Claims 2-11 and 21-23 depend from claim 1 and should be allowed for at least the same reasons as claim 1.

Independent claim 14 recites an optical transceiver that includes the optical module as set forth in claim 1. Accordingly, claim 14 should be allowed for at least the same reasons as claim 1.

Dependent claims 15-20 depend from claim 14 and should be allowed for at least the same reasons as claim 14.

The dependent claims recite additional features that are independently allowable. For example, claim 21 recites that the optical joint sleeve includes a third mount surface to mount a third optical element and claims 22-23 each recite that the optical joint sleeve includes a fourth mount surface to mount a fourth optical element.

None of the cited references, however, discloses either a third mount surface to mount a third optical element or a fourth mount surface to mount a fourth optical element.

At least for these additional reasons, claims 22-24 should be allowed.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

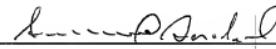
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Serial No. : 10/573,319
Filed : November 16, 2006
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Attorney's Docket No.: 20664-002US1 / FP04-0104-
00US-SE

The excess claims fees in the amount of \$150 are being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. However, please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 3/28/08


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